Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) A communication terminal apparatus connected to an analog communication network, the apparatus comprising:

a line interface circuit configured to connect to the analog communication network and to control the network, convert analog data comprising network control and monitor signals and a modulated signal received from the network into digital data, and convert digital data comprising network control and monitor signals and a modulated signal for transmitting to the network into analog data;

a digital signal processing circuit configured to comprise a network control signal processing section that receives network control and monitor signals from the line interface circuit and a modulation and demodulation processing section that receives a modulated digital signal from the line interface circuit and transmits a modulated digital signal to the line interface circuit;

a digital interface device disposed functionally between the line interface circuit and the digital signal processing circuit and configured to electrically isolate the network control and monitor signals and the modulated digital signals; and

a power-saving control device configured to carry out the operation of the line interface circuit and the network control signal processing section of the digital signal

processing circuit and suspend the operation of the modulation and demodulation processing section of the digital signal processing circuit so as to be into a power-saving state when a predetermined power-saving state change factor has occurred in a normal operating state, and resume the suspended operation of the modulation and demodulation processing section of the digital signal processing circuit when an incoming call signal is received by the line interface circuit and processed by the network control signal processing section of the digital signal processing circuit during the power-saving state,

wherein in the power-saving state the network control signal processing section of the digital signal processing circuit remains in operation and powered.

2. (original) The apparatus according to claim 1, further comprising:

a clock signal control device configured to halt and resume supplying an operating clock signal to the modulation and demodulation processing section according to an instruction from the power-saving control device;

wherein the power-saving control device generates an instruction to the clock signal control device to halt supplying the operating clock signal to the modulation and demodulation processing section so as to halt an operation thereof when the apparatus changes to the power-saving state, and generates an instruction to the clock signal control device to resume supplying the operating clock signal to the modulation and demodulation processing section so as to resume operation thereof when the apparatus returns to the normal operating state.

3. (original) The apparatus according to claim 1, further comprising:

a dedicated signal line configured to transmit a return-to-the normal operating state request signal from the network control signal processing section to the power-saving control device.

4. (original) The apparatus according to claim 1, further comprising:

a common signal line configured to transmit an interrupt request signal from the modulation and demodulation processing section during the normal operating state, and transmit a return-to-the normal operating state request signal from the network control signal processing section during the power-saving state.

5. (original) The apparatus according to claim 1, further comprising:

a serial communication line configured to be used for a signal transmission from the modulation and demodulation processing section during the normal operating state, and used for a transmission of a return-to-the normal operating state request signal from the network control signal processing section during the power-saving state.

6. (original) A communication terminal apparatus connected to an analog communication network, the apparatus comprising:

line interface means for connecting to the analog communication network,

controlling the network, converting analog data comprising network control and monitor signals and a modulated signal received from the network into digital data, and converting digital data comprising network control and monitor signals and a modulated signal for transmitting to the network into analog data;

digital signal processing means comprising a network control signal processing section that receives network control and monitor signals from the line interface means and a modulation and demodulation processing section that receives a modulated digital signal from the line interface means and transmits a modulated digital signal to the line interface means;

isolating means disposed functionally between the line interface means and the digital signal processing means, for electrically isolating the network control and monitor signals and the modulated digital signals; and

means for carrying out the operation of the line interface means and the network control signal processing section of the digital signal processing means and suspending the operation of the modulation and demodulation processing section of the digital signal processing means so as to be into a power-saving state when a predetermined power-saving state change factor has occurred in a normal operating state, and resuming the suspended operation of the modulation and demodulation processing section of the digital signal processing means when an incoming call signal is received by the line interface means and processed by the network control signal processing section of the digital signal processing means during the power-saving state.

7. (original) A method for controlling a communication terminal apparatus connected to an analog communication network, the method comprising:

waiting for an incoming call from the analog communication network for a predetermined period;

carrying out an operation of network control signal processing and suspending an operation of modulation and demodulation processing when the predetermined period has passed without the communication terminal apparatus being in operation;

resuming the suspended operation of modulation and demodulation processing when an incoming call from the analog communication network arrives at the communication terminal apparatus;

receiving a modulated analog signal from the analog network;

converting the received modulated analog signal into a received modulated digital signal;

electrically isolating the received modulated digital signal in a digital signal region;

demodulating the isolated received modulated digital signal into demodulated digital data.

8. (previously presented) A method of controlling a communication terminal connected to an analog communication network comprising:

providing as a part of the communication terminal a digital processor having a

subsystem that, when in an active state, demodulates information received from the analog communication network and modulates information for transmission to the analog network system;

electrically isolating network control signals from the analog communication network on the one hand and said digital processor subsystem on the other hand;

selectively providing a first control signal indicative of a desired change of the communication terminal from a normal state to a waiting state and, in response thereto, changing said digital processor subsystem from an active state in which it demodulates information received from the analog communication network and modulates information for transmission to the analog communication network to a suspended state in which it consumes less power than in the active state;

selectively providing a second control signal indicative of a desired change of the communication terminal back to its normal state and, in response thereto, changing said digital processor subsystem back to its active state for receiving and demodulating information from the analog communication network and for modulating and sending information to the analog communication network;

thereby saving power by selectively suspending the operation of said digital processor subsystem while retaining an ability to change back to an active state thereof when needed to receive and demodulate information from and to modulate and send information to the analog communication network.

9. (original) A method as in claim 8 in which said digital processor is driven by clock signals and said changing the digital processor subsystem to its suspended state comprises substantially reducing a rate of said clock signals.

10. (original) A method as in claim 8 in which said changing the digital processor subsystem to its suspended state comprises substantially reducing an amount of power supplied to said subsystem.

11. (original) A method as in claim 8 in which said communication terminal further comprises a central processing unit (CPU) having an interrupt request input terminal coupled with said digital processor and to said analog communication network, said CPU responding to an interrupt request on said input terminal when the communication terminal is in its waiting state by providing information initiating said second control signal, but responding to an interrupt request on said input terminal by providing services to said subsystem when the communication terminal is in its normal state.

12. (previously presented) A communication terminal connected to an analog communication network and comprising:

a digital signal processor having configured to include a subsystem that, when in an active state, demodulates information received from the analog communication network and modulates information for transmission to the analog network system;

an isolation circuit disposed functionally between the analog communication network and the digital signal processing subsystem and configured to electrically isolate network control signals from the analog communication network on the one hand and said digital processor subsystem on the other hand;

a source of a first control signal indicative of a desired change of the communication processor from a normal state to a waiting state;

a first control circuit coupled to said source of the first control signal and said digital signal processor subsystem and configured to respond to the first control signal by changing said digital signal processor subsystem from an active state in which it demodulates information received from the analog communication network and modulates information for transmission to the analog communication network to a suspended state in which it consumes less power than in the active state;

a source of a second control signal indicative of a desired change of the communication terminal back to its normal state;

a second control circuit coupled with said source of the second control signal and said digital signal processor subsystem and configured to respond to the second control signal by changing said digital signal processor subsystem back to its active state for receiving and demodulating information from the analog communication network and for modulating and sending information to the analog communication network;

thereby saving power by selectively suspending the operation of said digital signal processor subsystem while retaining an ability to change back to an active state thereof when

needed to receive and demodulate information from and to modulate and send information to the analog communication network.

13. (original) A communication terminal as in claim 12 including a source of clock signal coupled with said digital signal processor to drive the processor and with said first and second control circuits and responding to said control circuits to supply clock signals at a high rate during said active state and at a low rate during said suspended state.

14. (original) A communication terminal as in claim 12 including a circuit configured to supply operating power to said digital signal processor subsystem and with said first and second control circuits and responding to said control circuits to supply higher operating power during said active state and low operating power during said suspended state.

15. (original) A communication terminal as in claim 12 in which said communication terminal further comprises a central processing unit (CPU) having an interrupt request input terminal coupled with said second control circuit and with said analog communication network, said CPU responding to an interrupt request on said input terminal when the communication terminal is in its waiting state by providing information initiating said second control signal, but responding to an interrupt request on said input terminal by providing services to said subsystem when the communication terminal is in its

normal state.

Claim 16 (canceled).